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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,198	03/19/2004	Stuart B. Saunders	SAMS-005/00US	6517

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EXAMINER

GHULAMALI, QUTBUDDIN

ART UNIT PAPER NUMBER

2611

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/804,198	SAUNDERS ET AL.	
	Examiner	Art Unit	
	Qutub Ghulamali	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Acknowledgement

1. This Office Action is responsive to the Amendment filed on 10/08/2003.

Response to Arguments

2. Applicant's arguments filed 10/08/2006 have been fully considered but they are not persuasive. Applicant's argument, (pages 9-14), regarding Ahn, asserting Ahn does not disclose "a cancellation circuit configured to **phase shift 180 degrees** a first portion of the transmitter signal **that does not include a reception signal** to produce a phase shifted signal that is combined with a second portion of the transmitter signal to produce a combined signal", the examiner disagrees.

Examiner's response – The examiner in his office action referenced fig. 3, but did not reference the correct figure 6 in Ahn, stands corrected. The examiner most respectfully would like to draw applicant's attention to the embodiment that is within the art of Ahn, as cited previously. As disclosed by Ahn with reference to fig. 6, Ahn shows the transmitter signal Tx split into two portions, a first signal that does not contain the reception signal Tx1 is sent to 33 to produce a phase shifted signal –Tx1 (180 degrees, col. 12, lines 1-9), that is combined (35) with a second portion Tx2 of the transmitter

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signal to produce a combined signal (col. 12 lines 10-24). The disclosure “a cancellation circuit configured to **phase shift 180 degrees** a first portion of the transmitter signal **that does not include a reception signal** to produce a phase shifted signal that is combined with a second portion of the transmitter signal to produce a combined signal” quite unambiguously reads on the claim limitations as claimed in claim 1. The examiner, based on the clear and unambiguous disclosure in Ahn, therefore maintains the rejection to follow.

As per remarks by the applicant regarding claim 12, “a first coupler configured to receive a first portion of a transmitter signal that does not include a receiver signal, the transmitter being associated with a frequency”, a similar explanation is offered by the examiner drawing applicant’s attention to Ahn, figure 6, instead of fig. 3 previously cited, wherein a first coupler 33 receives a first portion of the transmitted signal Tx1 that does not have the reception signal. The examiner, based on the clear and unequivocal disclosure recited in Ahn, maintains his rejection to follow.

As per applicant’s remarks regarding claim 7, the examiner stands corrected, withdraws the 35 U.S.C 102(e) rejection, however, the claim is rendered obvious under Ahn and Schirtzer combination as cited in previously, the rejection to follow.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-6, 12-13 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Ahn et al (US 6,567,648).

Regarding claim 1, Ahn discloses an apparatus comprising:

a transmitter configured to send a transmitter signal associated with a frequency (fig. 6; col 11, lines 35-40);

a receiver associated with the frequency (fig. 6; col 11, lines 35-40);

an antenna (15) coupled to the transmitter and the receiver (fig. 6; element 15; col 11, lines 44-48); and

a signal cancellation circuit (30a) coupled to the transmitter, the receiver and the antenna, the signal cancellation circuit configured to phase shift a first portion of the transmitter signal (Tx1) to produce a phase-shifted signal (-Tx1), the signal cancellation circuit configured to combine the phase-shifted signal with a second portion (Tx2) of the transmitter signal to produce a combined signal, the second portion of the transmitter signal being associated with a reflection of a third portion of the transmitter signal from the antenna (Rx), the first portion (Tx1), the second portion (Tx2) and the third portion (Rx) of the transmitter signal being different from each other (fig. 6; col 11, lines 52-65; col. 12 lines 1-24)

As per claims 2 and 4, Ahn discloses signal cancellation circuit includes a first coupler coupled to the transmitter and the antenna, the first coupler configured to receive the first portion of the transmitter signal (fig. 6; col 11, lines 35-40);

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a phase shifter (33) coupled to the first coupler (33), the phase shifter configured to modify the phase of the transmitter signal to produce a modified signal (delays it) (fig. 6; col 12, lines 1-9), and

a second coupler coupled to the phase shifter and the antenna, the second coupler configured to combine the modified signal and the second portion of the transmitter signal to produce the combined signal, the second coupler configured to send the combined signal to the receiver and coupled to the antenna (fig. 6; col 11, lines 51-56; col. 12, lines 10-24).

Regarding claims 3 and 13, Ahn discloses a magnitude of the first portion of the transmitter signal is substantially equal to a magnitude of the second portion of the transmitter signal (col. 12, lines 7-9).

As per claim 5, Ahn discloses a frequency source coupled to the transmitter and the receiver, the frequency source configured to send a carrier signal having the frequency to the transmitter and the receiver (fig. 6; elements 10, 20).

As to claim 6, Ahn discloses a first coupler coupled to the transmitter and an antenna, and a second coupler coupled to the antenna (fig. 6; col 11, lines 44-48, 58-65);

the apparatus further comprising:

a circulator (31) coupled to the first coupler (33), the second coupler (34), and the antenna, the circulator configured to forward the third portion of the transmitter signal from the first coupler to the antenna, the circulator configured to forward the second

portion of the transmitter signal from the antenna (15) to the second coupler (fig. 6; elements 32, 33, 34).

Regarding claim 12, Ahn discloses an apparatus comprising: a first coupler configured to receive a first portion (Tx1) of a transmitter signal, the transmitter signal being associated with a frequency (fig. 6; col 11, lines 52-64); a circuit coupled to the first coupler, the circuit configured to modify a phase of the transmitter signal to produce a modified (phase delay) signal (fig. 6; col 11, lines 44-50; col. 12, lines 1-9); and a second coupler coupled to the circuit, the second coupler configured to combine the modified signal and a second portion of the transmitter signal to produce a combined signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna, the second coupler configured to send the combined signal to a receiver associated with the frequency and coupled to the antenna (fig. 6; col 11, lines 65-67; col. 12, lines 1-24).

As per claim 17, Ahn discloses a low-noise amplifier (LNA) configured to couple the second coupler to the receiver, the LNA configured to amplify the combined signal (fig. 4, elements 23 and 18; col. 3, lines 30-50).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al (USP 6,567,648) in view of Schirtzer (US 6,686,830).

Regarding claim 7, Ahn discloses a method comprising:

phase shifting a first portion of a transmitter signal (Tx1) to produce a phase-shifted signal, the transmitter signal being associated with a frequency (fig. 6; col 11, lines 58-65; col. 12, lines 1-9); and
combining the phase-shifted signal with a second portion of the transmitter signal (Tx2+Rx) to produce a reduced signal, the second portion of the transmitter signal being associated with a reflection of the transmitter signal from an antenna (Tx2+Rx) (fig. 6; col. 12, lines 10-24). Ahn however is silent regarding the antenna being coupled to a homodyne transceiver. Schirtzer in a similar field of endeavor discloses the antenna being coupled to a homodyne transceiver. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the antenna being coupled to a homodyne transceiver as taught by Schirtzer in the circuit of Ahn because it can minimize antenna reflected signals to restore it to original signal.

Regarding claim 8, Ahn discloses modifying (delay is provided), before the combining an amplitude of the first portion of the transmitter signal such that the amplitude of the first portion of the transmitter signal is substantially equal to an amplitude of the second portion of the transmitter signal (fig. 6; col. 12, lines 1-9).

8. Claims 14-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al (US 6,567,648) in view of Schirtzer (US 6,686,830).

Regarding claim 14, Ahn discloses all limitations of the claim except circuit includes a variable attenuator, a phase shifter, a detector and a controller. Schirtzer in a similar field of endeavor discloses circuit includes a variable attenuator, a phase shifter, a detector and a controller, the variable attenuator being coupled to the first coupler and the phase shifter, the controller being coupled to the variable attenuator, the phase shifter and the detector, the second coupler being coupled to the phase shifter and the detector (col. 4, lines 23-67; col. 6, lines 15-46). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a variable attenuator, a phase shifter, a detector and a controller as taught by Schirtzer in the apparatus of Ahn because it can mitigate data error and allow operation at low power levels.

Regarding claims 15 and 16, Ahn discloses all limitations of the claim except does not explicitly disclose a memory coupled to the circuit and configured to store calibration data, the circuit including a detector and a controller, the controller being coupled to the first coupler, the second coupler and the detector, the detector being configurable based on calibration data, the controller configured to modify the phase of the transmitter signal based on the calibration data. Schirtzer in a similar field of endeavor discloses disclose a memory coupled to the circuit and configured to store calibration data, the circuit including a detector and a controller, the controller being coupled to the first coupler, the second coupler and the detector, the detector being

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configurable based on calibration data, the controller configured to modify the phase of the transmitter signal based on the calibration data (col. 4, lines 40-58; col. 6, lines 32-46). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a memory coupled to the circuit and configured to store calibration data, the circuit including a detector and a controller, the controller being coupled to the first coupler, the second coupler and the detector, the detector being configurable based on calibration data, the controller configured to modify the phase of the transmitter signal based on the calibration data as taught by Schirtzer in the apparatus of Ahn because it can improve reception and mitigate noise in received data.

As per claims 18 and 19, Ahn discloses all limitations of the claim except does not explicitly disclose a homodyne transceiver including the receiver and a transmitter. Schirtzer in a similar field of endeavor discloses the homodyne transceiver including the receiver and a transmitter the homodyne transceiver being associated with the frequency, the homodyne transceiver being coupled to the antenna via the first coupler (col. 6, lines 15-30). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the homodyne transceiver including receiver and a transmitter the homodyne transceiver being associated with the frequency, the homodyne transceiver being coupled to the antenna via the first coupler as taught by Schirtzer in the apparatus of Ahn because it can improve detection and provide better demodulation of data.

Regarding claim 20, Ahn discloses all limitations of the claim including an

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antenna a receiver and a transmitter, however, fails to disclose a homodyne transceiver including the homodyne transceiver being associated with the frequency, the transmitter of the homodyne transceiver being coupled to the first coupler, the receiver of the homodyne transceiver being coupled to the second coupler; and a circulator, the circulator being coupled to the first coupler, the second couple and the antenna. Schirtzer in a similar field of endeavor discloses homodyne transceiver being associated with the frequency, the transmitter of the homodyne transceiver being coupled to the first coupler, the receiver of the homodyne transceiver being coupled to the second coupler; and a circulator, the circulator being coupled to the first coupler, the second couple and the antenna (col. 1, lines 50-67; col. 4, lines 24-46; col. 6, lines 15-46). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a homodyne transceiver associated with frequency as taught by Schirtzer in the apparatus of Ahn because it can provide detection of backscatter signal different from that of transmitter to improve reception and mitigate noise in received data.

Allowable Subject Matter

9. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

US Patent (2004/0090309) to Taki et al.

US Patent (6,531,957) to Nysen.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday, 7:00AM - 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QG.
December 11, 2006.


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER